

REMEDIAL SITE ASSESSMENT DECISION - REGION 1

Site Name: Robbins Company EPA ID#: MAD 001198639
 Alias Site Names: _____
 City: Attleboro County or Parish: _____ State: MA
 Refer to Report Dated: 4-4-95 Report type: CSA
 Report developed by: RFW/ARCS

DECISION:

☐ 1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:

☐ 1a. Site does not qualify for further remedial site assessment under CERCLA (Site Evaluation Accomplished - SEA)

☐ 1b. Site may qualify for further action, but is deferred to:

☐ RCRA
☐ NRC

☒ 2. Further Assessment Needed Under CERCLA:

2a. (optional) Priority: ☐ Higher ☒ Lower

2b. Activity Type:

☐ PA
☐ SI

☒ ESI
☐ HRS evaluation

☐ Other: _____

DISCUSSION/RATIONALE:

GW (potential) and SW impacts

Site is a small quantity generator and cannot be Deferred.

Report Reviewed and Approved by:

Don Smith

Signature:

Don Smith

Date: 4-29-95

Site Decision Made by:

Don Smith

Signature:

Don Smith

Date: 4-29-95

**FINAL COMBINED SITE ASSESSMENT REPORT
FOR
ROBBINS COMPANY, INC.
ATTLEBORO, MASSACHUSETTS**

**CERCLIS No. MAD001198639
TDD No. 9209-37-AWC
Work Assignment No. 19-1JZZ**

Prepared by:

Roy F. Weston, Inc.
187 Ballardvale Street
Wilmington, Massachusetts 01887

April 4, 1995

WESTON/ARCS
Reviewed and Approved:

Lisa M. LaFarge 4/4/95
Task Manager Date

Joseph D. Mast 4/4/95
Site Manager Date

T. Scumia 4/4/95
QA Review Date

Work Order No. 04100-019-006-0007

DISCLAIMER

This report was prepared solely for the use and benefit of the U.S. Environmental Protection Agency (EPA) for the specific purposes set forth in the contract between the EPA and Roy F. Weston, Inc. (WESTON®). Professional services performed and reports generated by WESTON have been prepared for EPA purposes as described in the contract. The information, statements, and conclusions contained in the report were prepared in accordance with the statement of work, and contract terms and conditions. The report may be subject to differing interpretations or misinterpretation by third parties who did not participate in the planning, research or consultation processes. Any use of this document or the information contained herein by persons or entities other than the EPA shall be at the sole risk and liability of said person or entity. WESTON therefore expressly disclaims any liability to persons other than the EPA who may use or rely upon this report in any way or for any purpose.

TABLE OF CONTENTS

<u>Title</u>	<u>Page</u>
INTRODUCTION	1
SITE DESCRIPTION AND REGULATORY HISTORY	1
OPERATIONAL HISTORY AND WASTE CHARACTERISTICS	6
WASTE/SOURCE SAMPLING	12
GROUNDWATER PATHWAY	18
SURFACE WATER PATHWAY	21
SOIL EXPOSURE PATHWAY	23
AIR PATHWAY	24
SUMMARY	24
REFERENCES	
ATTACHMENT A - ROBBINS COMPANY, INC. SOIL SAMPLING RESULTS A HEALTH AND ENVIRONMENTAL RISK ASSESSMENT W.E. KURINGER ASSOCIATES AND THE PAULDING COMPANY	A-1
ATTACHMENT B - ROBBINS COMPANY, INC. GROUNDWATER AND SOIL SAMPLING RESULTS SITE INVESTIGATION FOR GLINES AND RHODES REFINING PROPERTY CAMP DRESSER & MCKEE	B-1
ATTACHMENT C - ROBBINS COMPANY, INC. SPLIT SOIL AND SEDIMENT SAMPLE ANALYTICAL RESULTS ANALYZED BY R.I. ANALYTICAL LABORATORIES, INC. Samples Collected by WESTON/ARCS on June 29, 1994	C-1

TABLE OF CONTENTS
(concluded)

<u>Title</u>	<u>Page</u>
ATTACHMENT D - ROBBINS COMPANY, INC. SOIL SAMPLE ANALYTICAL RESULTS ANALYZED BY EPA ENVIRONMENTAL SERVICES DIVISION Samples Collected by WESTON/Technical Assistance Team on June 29, 1994	D-1
ATTACHMENT E - ROBBINS COMPANY, INC. SOIL AND SEDIMENT SAMPLE ANALYTICAL RESULTS ANALYZED BY CLP LABORATORIES Samples Collected by WESTON/ARCS on June 29, 1994	E-1

LIST OF FIGURES

<u>Figure No.</u>	<u>Title</u>	<u>Page</u>
1	Location Map	2
2	Site Sketch	4
3	Four-Mile Radius Site Sketch	13

LIST OF TABLES

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
1	CERCLA Sites Within One Mile of Robbins Company, Inc..	7
2	RCRA Sites Within One Mile of Robbins Company, Inc.	7
3	Source Evaluation for Robbins Company, Inc.	10
4	Hazardous Waste Quantities for Robbins Company, Inc..	11
5	Sample Summary: Robbins Company, Inc. Samples Collected by WESTON/ARCS on June 29, 1994	12
6	Summary of Analytical Results Soil and Sediment Sample Analyses for Robbins Company, Inc.	14
7	Public Water Supply Sources Within Four Miles of Robbins Company, Inc..	20
8	Estimated Drinking Water Populations Served by Groundwater Sources Within Four Miles of Robbins Company, Inc..	20
9	Water Bodies Within the Surface Water Segment of Robbins Company, Inc..	21
10	Estimated Population Within Four Miles of Robbins Company, Inc.	24

**Final Combined Site Assessment Report
Robbins Company, Inc.
Attleboro, Massachusetts**

**CERCLIS No. MAD001198639
TDD No. 9209-37-AWC
Work Assignment No. 19-1JZZ
Work Order No. 04100-019-006-0007**

INTRODUCTION

The Region I U.S. Environmental Protection Agency (EPA) Waste Management Division has requested that Roy F. Weston, Inc. Alternative Remedial Contract Strategy (WESTON/ARCS) team perform a Combined Site Assessment (CSA) of the Robbins Company, Inc. (Robbins) property located in Attleboro, Massachusetts. Tasks were conducted in accordance with the ARCS contract, the CSA scope of work, and technical specifications provided by the EPA under Work Assignment No. 19-1JZZ, which was issued to WESTON/ARCS on September 23, 1992.

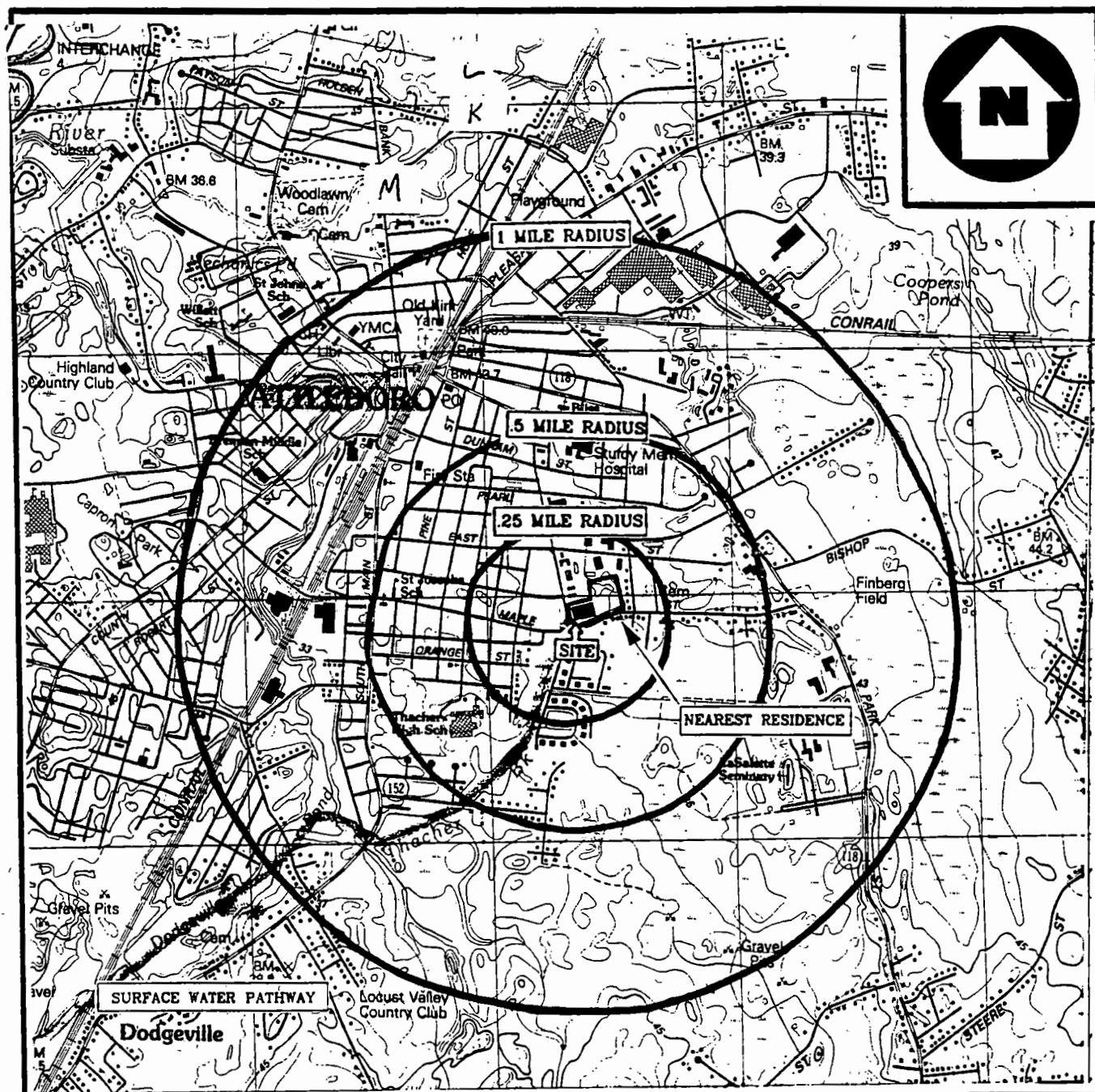
This CSA complies with the requirements set forth under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) program, more commonly known as Superfund. It does not necessarily fulfill requirements associated with other EPA programs such as those specified under the Resource Conservation and Recovery Act (RCRA) or other Federal, State, and local regulations. CSAs are intended to provide an integrated approach to assessing RCRA and CERCLA sites. They are limited efforts and are not intended to supersede more detailed investigations.

Background information used in the generation of this report was obtained through file searches conducted at the Massachusetts Department of Environmental Protection (MA DEP) and EPA, interviews with town officials and individuals knowledgeable of the property history and characteristics of the property, and conversations and correspondence with other Federal, State, and local agencies. Information was also collected during the WESTON/ARCS on-site reconnaissance, conducted August 23, 1993.

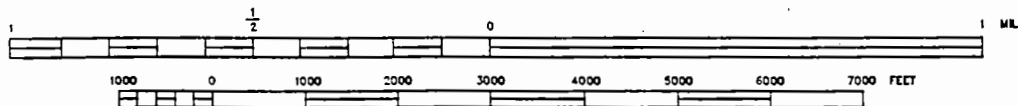
SITE DESCRIPTION AND REGULATORY HISTORY

The Robbins Company, Inc. (Robbins) property is located on the east side of O'Neil Boulevard in Attleboro, Bristol County, Massachusetts (latitude 41° 58' 10", longitude 71° 19' 20") (Figure 1). Robbins is a manufacturer of jewelry and awards, principally for personnel recognition [1].

Two buildings connected by a breezeway are located on the 6.6-acre parcel. The main building, which is approximately 54,000 square feet, houses the offices and manufacturing department, hazardous waste storage area and the present wastewater treatment plant (WWTP). A partial second floor (approximately 6,600 square feet) exists in the main building. The storage building is approximately 25,600 square feet and is used as a warehouse for finished goods. Both buildings are constructed with concrete slab on-grade foundation [1].



BASE MAP IS A PORTION OF THE FOLLOWING 7.5' x 15' QUADRANGLE:
 Attleboro, MA-RI 1987 and Taunton MA 1987, 1: 25000



QUADRANGLE LOCATION

LOCATION MAP

ROBBINS COMPANY INCORPORATED
 ATTLEBORO, MASSACHUSETTS



FIGURE 1

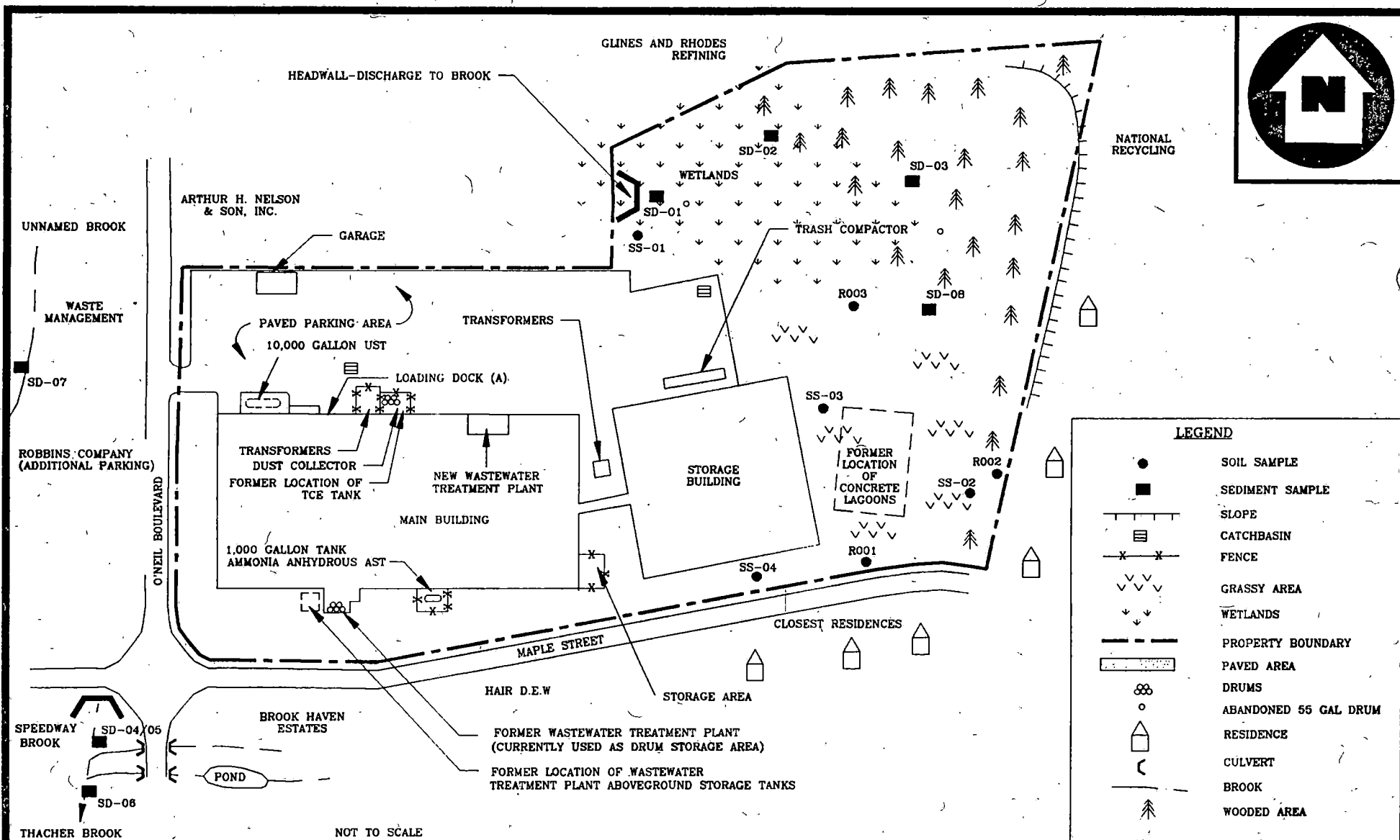
WESTON/ARCS conducted an on-site reconnaissance on August 23, 1993 at the Robbins property [1]. During the WESTON/ARCS on-site reconnaissance, no areas of stained soil or stressed vegetation were observed [1]. The property and surrounding area are depicted on Figure 2.

The topography in the vicinity of the property is relatively flat, sloping gradually towards the south. The northeastern and eastern property boundaries are at the top of a 5-foot vertical embankment. The property is located in an industrial/commercial area with residential properties to the east and south. Waste Management is located northwest of the property across O'Neil Boulevard. Arthur H. Nelson & Son, Inc. and Glines and Rhodes Refining abut the property to the north. National Recycling and residential houses abut the property to the east. Residential housing units, Hair D.E.W. and Brook Haven Estates, are located to the south of the property across Maple Street [1].

A paved parking area is located to the north of the buildings and to the west of O'Neil Boulevard. A garage/shed structure is located near the northwest corner of the parking area. A 10,000-gallon heating oil underground storage tank (UST) is located along the northern exterior wall of the main building [1]. The tank was installed in 1985 and replaced two 5,000-gallon fuel oil USTs [2]. Continuing east along the exterior wall are Massachusetts Electric transformers in a fenced-in area. Adjacent to the electrical transformers are a dust collector and approximately thirty-five 55-gallon drums in a fenced-in area. According to Mr. Camara, Facility Service Manager for Robbins, four of the drums contained particulate from the dust collector. The remaining drums were empty and will be used for brass and precious metals reclamation. This area was the former location of a 275-gallon trichloroethylene aboveground storage tank (AST) [1; 2].

Wetlands, approximately 29,000 square feet in area, are located north of the northeastern corner of the parking area. The remaining area to the northeast is wooded. An abandoned 55-gallon drum and small pile of miscellaneous rubble were observed in the wetlands (Figure 2) [1].

A Massachusetts Electric transformer is located between the two buildings north of the breezeway. This transformer was installed in 1988 during the construction of the storage building. A trash compactor is located along the northern exterior wall of the storage building. A 1,000-gallon anhydrous ammonia AST is located along the southern exterior wall of the main building. This AST is located within a fenced-in area. A former WWTP was located along the southern interior wall of the main building. This area is currently used as a drum storage area. The former WWTP concrete lagoons were located east of the buildings. The former WWTP was constructed in 1968 and ceased operation in 1988 when the new WWTP, located in the northeastern portion of the main building, came on-line. The WWTP system is described in more detail in the Operational History section of this report. During the property visit, WESTON/ARCS personnel observed approximately eleven 55-gallon drums stored in the area of the former WWTP (Figure 2). According to Mr. Camara, these drums contained either waste acetone, hazardous waste solids or liquids, spent filters, spent carbon or spent corrosive [1].



SITE SKETCH

ROBBINS COMPANY INCORPORATED
ATTLEBORO, MASSACHUSETTS

WESTON
MANAGERS DESIGNERS/CONSULTANTS

FIGURE 2

Three former ASTs: a 2,500-gallon, 50 percent sulfuric acid AST; a 2,000-gallon, 25 percent sodium hydroxide AST; and a 2,000-gallon, 15 percent chlorine AST were situated on a concrete pad in a fenced-in area adjacent to the former WWTP [2]. The chemicals were used for pH adjustment (sulfuric acid and sodium hydroxide) and cyanide destruction by alkaline chlorination (sodium hydroxide and sodium hypochlorite) prior to release to the lagoons. In February 1991, the three tanks were removed by a plating supply equipment company [41]. Further information concerning the three ASTs were not available to WESTON/ARCS.

Surface run-off drainage, in the northern wooded and wetland area, is towards the headwall located at the lowest point in the wetlands and into a pipe which carries the run-off into the town stormwater drainage system, and empties into Speedway Brook. Stormwater run-off from the parking lot flows easterly to two catch basins; one located just north of the transformers on the north side of the main building, and the other near the northeast corner of the northernmost parking lot. These catch basins empty into the town stormwater drainage system, which empties into Speedway Brook [1].

Drinking water for Attleboro residents are supplied primarily by public wells. The nearest private wells are located greater than one-half mile from the Robbins property, the locations of these wells could not be determined as local agencies do not maintain records of private well users/owners [40]. The closest residences are along Maple Street, approximately 50 feet to the south of the Robbins property boundary (Figure 2) [1; 11; 12].

A MA DEP inspection was conducted at the property on September 15, 1982 to determine the status of the facility relative to compliance with the Hazardous Waste Regulations contained in 310 CMR 30.000 and 40 CFR 260-265. Robbins was found by MA DEP to be in violation of the State codes on several counts including: hazardous waste contained in drums not stored in a fenced-in storage area; no proper secondary containment in place for drum storage areas; and drums not being properly labelled. Subsequently, MA DEP issued Robbins a Notice of Violation (NOV) on September 27, 1982 [3].

A follow-up inspection was performed on May 17, 1983. On June 1, 1983, the MA DEP issued an NOV for the outstanding violations and revealed that Robbins was operating as a large-quantity generator (LQG) [4].

A Preliminary Assessment (PA) report for the Robbins property, prepared by NUS Corporation Field Investigation Team (NUS/FIT) in November 1983, indicated that there appeared "to be no hazard to the environment at this facility." NUS/FIT also stated that the drum storage area was not bermed and did not possess a collection basin to contain a spill; however, there were no signs of contamination [9].

MA DEP issued a NOV on March 6, 1984, requiring the implementation of four hazardous waste management requirements relative to generators of hazardous waste. Robbins was requested to submit Personnel Training records, a written Contingency Plan, a written Inspection Plan, and an engineering plan for a drum containment storage area [5]. The NOV also stated that MA DEP received a letter from Robbins on December 16, 1983 requesting a status change from treatment, storage, and disposal facility (TSDF) to that of a generator with temporary storage. Robbins later submitted a letter to MA DEP on February 20, 1984 requesting to maintain their present interim

TSDF status. On March 2, 1984, Robbins again requested a generator status with temporary storage [5].

Prior to 1985, Robbins had received an estimated 2,500 violations under its National Pollutant Discharge Elimination System (NPDES) permit [19]. In 1987, MA DEP revised the NPDES permit to levels that were significantly lower than the original NPDES permit limitations. Because Robbins had difficulty meeting this lower discharge limit, a new WWTP system was initiated by Robbins to eliminate any discharge. EPA granted Robbins a temporary interim status from the new discharge limits while the new system was being built [19].

A Screening Site Inspection of the Robbins property was initiated by NUS/FIT in June 1990. However, because the property was an active, RCRA-regulated TSDF facility at that time, the Superfund program Site Inspection (SI) was canceled and the property was deferred to the RCRA program [10].

MA DEP issued Robbins a Notice of Noncompliance (NON) on May 23, 1991 in response to the following: no recycling permit was submitted for spent bright dip acid solution recycling; non-compliance with emergency procedures, prevention, and responses; and no hazardous waste manifest used for WWTP sludge and spent filters [6]. A follow-up inspection was performed on June 11, 1991 and on July 1, 1991. MA DEP issued an Notice of Inspection (NOI) for the outstanding violations [7].

A NOV of the Land Disposal Restrictions Rule was issued to Robbins by MA DEP on August 19, 1991 for improper identification of its wastewater treatment sludge from its electroplating operation as non-hazardous, when the correct classification should have been F006 (regulated under the land disposal restrictions) [8].

Robbins is currently listed as a small-quantity generator (SQG) under RCRA with a notification date of August 13, 1980, which allows the facility to store hazardous waste (waste code F006) in drums for a period no longer than 90 days [16].

A total of seven Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) sites, listed in Table 1, are identified within one mile of the property as of October 13, 1993 (excluding Robbins) [15]. There are 37 RCRA notifiers within one mile of the Robbins property, listed in Table 2, as identified in the U.S. EPA RCRA Generators in Region I Active and Inactive by Town report of May 13, 1991 [16]. The dates listed above indicate the printing date of the respective lists cited above.

OPERATIONAL HISTORY AND WASTE CHARACTERISTICS

Robbins has operated at the property since 1949, designing and manufacturing jewelry, principally for personnel-recognition awards. As such, various metals are cut, stamped, etched, polished, and painted. The processes employ the use of acids, alkalies, cyanide,

Table 1
CERCLA Sites
Within One Mile of Robbins Company, Inc.

Site Name	Facility I.D. No.	Address	Distance/Direction
Finberg Field	MAD985280775	Park and Bishop, Attleboro	0.75 miles east
Glines and Rhodes Refining	MAD052629979	189 East Street, Attleboro	Adjacent north
Handy & Harmon	MAD980520720	42 Union Street, Attleboro	<3/4 miles northwest
Leavens Mfg., Co.	MAD063913909	Summer Street, Attleboro	1 mile west
Marathon Co.	MAD001207638	O'Neil Boulevard, Attleboro	<1/4 miles south
Summer Street Property	MAD985300441	219 Summer Street, Attleboro	1 mile west
Texas Instruments Inc.	MAD007325814	34 Forest Street, Attleboro	>1 mile northwest

[15]

Table 2
RCRA Sites
Within One Mile of Robbins Company, Inc.

Site Name	Facility I.D. No.	Activity Type	Distance/Direction
A B R Auto Body	MAD982199242	Gen 3	<3/4 miles northwest
Alviti Creations	MAD001620012	Gen 3	1 mile northwest
Apco Mossberg	MAD059731836	NL	<3/4 miles south
Arenburg Brothers Inc.	MAD050327626	Gen 3	<3/4 miles west
Automatic Machine Products	MAD001199223	Gen 1	<3/4 miles west
Barry Industries, Inc.	MAD080818941	Gen 2	1.0 mile west
Bassler K F Co, Inc.	MAD001622869	Gen 3	<1 mile southwest
Cobbs Transmission Services	MAD075701094	Gen 3	1/4 miles northwest
Composite Technical Alloys	MAD059739110	Gen 3	<3/4 miles west
Contech Research Inc.	MAD041957150	Gen 3	1 mile west
Fisher J M Co.	MAD001198993	Gen 2	1/4 miles west
Foster Inc.	MAD001199207	Gen 2	<1/2 miles west
Foxon Packaging Corp.	MAD062319553	Gen 2	<1/2 miles west

Table 2

**RCRA Sites
Within One Mile of Robbins Company, Inc.
(concluded)**

Site Name	Facility I.D. No.	Activity Type	Distance/Direction
Glines and Rhodes Refining	MAD052629979	Gen 3	Adjacent north
Guyot Brothers	MAD001199199	Gen 3	<3/4 miles west
Krew Inc.	MAD001192376	Gen 3	1/2 miles northwest
Larson Tool and Stamping	MAD001459536	Gen 3	<1 mile southwest
Leach and Gardner Co.	MAD000846386	Gen 1	NA
Leach and Gardner Co.	MAD000846394	Gen 2	<1/4 miles west
Leavens Awards Co., Inc.	MAD063913909	Gen 3	<3/4 miles southwest
Lepper John E, Inc.	MAD001461706	NL	300 feet north
Mantrose Heausser Co.	MAD000189167	Gen 2	1 mile west
Marathon Co.	MAD001207638	Gen 2	NA
Pelletiers Automotive Inc.	MAD019158773	Gen 3	1/2 miles southwest
Plastic Craft Novelty Co., Inc.	MAD001200302	Gen 3	1/2 miles southwest
Reeves Co., Inc.	MAD001198928	Gen 2	NA
Shuster Ralph Metals Inc.	MAD019159078	NL	<1/2 miles north
Simmons R F Co., Inc.	MAD075713487	Gen 2	NA
St. Francis R S Inc.	MAD048971261	Gen 3	<1 mile north
Stern Leach Co.	MAD001208933	Gen 2	<1/2 miles northwest
Swank Inc.	MAD001202340	Gen 2	<1/4 miles west
Texas Instruments Inc.	MAD007325814	Gen 1	<1/2 miles north
Thomas Charles & Sons	MAD001194091	Gen 3	1 mile north
Union Armature Div. of Rct., Inc.	MAD075679019	Gen 2	<3/4 miles west
Waste Systems Inc.	MAD985275478	Gen 2	50 feet northwest

NA = Not available.

NL = Not listed.

Gen 1 = Generator (1,000 + Kg/mo).

Gen 2 = Generator (100 to 1,000 Kg/mo).

Gen 3 = Generator (0 to 99 Kg/mo).

[16]

polishing compounds, degreasing, and drying agents. The metals and chemicals used at the facility include corrosives, freons, acetone, brass, copper, lead, zinc, nickel, silver, gold, rhodium, cyanide, and small amounts of degreasing compounds, 1,1,1-trichloroethane and trichloroethylene (TCE) [17]. No additional information was available at the Attleboro Tax Assessor's Office regarding prior ownership history of the Robbins property. However, the adjacent property, Glines and Rhodes Refining, was owned by Robbins during 1945 through 1948 and later by The Attleboro Refining Company between 1948 and 1977 [13; 25].

According to a Robbins representative, the main building was constructed in 1949 and the storage building was constructed in 1988 [1]. There are no Tax Assessor's Records of buildings prior to 1949; therefore, the property was presumably undeveloped land prior to that date. Mr. Camara indicated that the property may have been used as a dump prior to 1949 [13].

The wastewater generated from the manufacturing processes typically contained low levels [parts per billion (ppb)] of various metals. From 1968 to 1988, the former WWTP was used to remove metals and destroy cyanide. Concrete lagoons served as a settling tank for the wastewater prior to discharge, through a weir, to a buried conduit that ran westerly along Maple Street to Speedway Brook. During the time the former WWTP was in operation, metal hydroxide in the form of sludge was periodically removed from the lagoons, drummed, and transported off-site by a licensed waste hauler for disposal [1].

Prior to 1985, Robbins had received numerous violations under its NPDES permit. As a result of the 1987 MA DEP revisions of the NPDES permit, Robbins designed a new WWTP which implemented a closed-loop system (i.e., zero discharge). This system was completed and on-line in February 1988 [19]. The former WWTP and the concrete lagoons were dismantled and removed during 1991 and 1992. The associated pipes to the discharge point were removed within the property boundaries and the remaining piping was capped in place [1; 2]. Clean fill was used to fill in and grade the former lagoon area [17].

In 1987, groundwater was sampled by Franklin Environmental Services for Robbins, at a depth of about 8 to 10 feet below the ground surface at two separate excavations (locations unknown). Both groundwater sampling locations were reportedly downgradient of the lagoons and were analyzed for silver, nickel, and total cyanide. Nickel was detected at a concentration of 0.12 milligrams per liter (mg/L). The current Massachusetts Drinking Water Standard for nickel is 0.08 mg/L [17; 35].

A Health and Environmental Risk Assessment was performed on the former lagoons in July 1992 by W.E. Kuringer Associates and the Paulding Company, Inc. for Robbins. Soils beneath the lagoons (8 feet below the ground surface) were sampled at five locations and were analyzed for total cyanide and the eight RCRA metals. The samples were analyzed by means of the Toxicity Characteristic Leaching Procedure (TCLP). Total RCRA metals detected at the highest concentration included arsenic [21 milligrams per kilogram (mg/kg)], barium (18.5 mg/kg), cadmium (1.4 mg/kg), chromium (12.7 mg/kg), lead (120.1 mg/kg), and silver (47.7 mg/kg). Mercury and selenium were not detected in any of the soil samples. The analytical results indicated no total cyanide and that the total metals concentrations of the soils below the lagoons did not exceed the reportable 1988 EPA regulatory levels [17]. Attachment A summarizes the analytical results.

Table 3 presents identified structures or areas on the Robbins property that are potential sources of contamination, the containment factors associated with each source, and the relative location of each source.

Table 4 summarizes the types of potentially hazardous substances which have been disposed, used, or stored on the property.

Table 3

Source Evaluation for Robbins Company, Inc.

Potential Source Areas	Containment Factors	Spatial Location
Debris Pile and Abandoned 55-gallon Drum	None	Outside north of buildings in the wetlands.
1,000-gallon Ammonia Anhydrous AST	None	Outside southern side of main building on unpaved area.
Manufacturing Area (including WWTP)	Inside building on concrete floor	Inside main building.
Former WWTP (present hazardous waste storage area) and associated ASTs	Inside building on concrete floor; ASTs outside on concrete pad	Inside southern side of main building. ASTs were located adjacent to the WWTP outside.
Former Concrete Lagoons and Associated Pipes	Concrete lined lagoons	Two former lagoons baffled together occupying total space of 80 feet by 120 feet by 6 feet deep. Located east of the buildings in a grassy area.
Drum Storage Area, Dust Collector, and Former 275-gallon TCE AST	Outside building on paved parking lot	Outside center of main building along the north wall.
10,000-gallon Heating Oil UST	None	Outside northern side of main building.
Transformers (likely non-PCB containing, as they were installed in 1988)	Concrete pads	Between Main Building and Storage Building. Also between loading dock and dust collector on North Side of main building.

[1; 2; 18]

Table 4

Hazardous Waste Quantities for Robbins Company, Inc.

Substance	Quantity or Volume/Area	Years of Use/Storage	Years of Disposal	Source Area
Wastewater Effluent	1984: 500,000 gpw By 1985: 80,000 gpw By 1986: 22,000 gpw By 1988: zero effluent	1968 to 1988	1968 to 1988	Concrete lagoons
Wastewater Sludge (F006, D011) containing electroplating operations* waste and silver	1986: 4,000 gpy 1993: 7 gpy	1968 to present	NA	WWTP
Spent Stripping Bath Solution (F009) where cyanides were used	220 gpy	1949 to present	NA	Manufacturing area
Spent Cyanide Plating Bath Solution (F007)	110 gpy	1949 to present	NA	Manufacturing area
Spent Corrosives Solution (D002)	55 gpy	1949 to present	NA	Manufacturing area
1,1,1-Trichloroethane	1991: 5,445 gpy 1993: 0 gpy	Unknown to 1993	NA	Manufacturing area
Trichloroethylene	1992: 1,980 gpy 1993: 0 gpy	Unknown to 1993	NA	Manufacturing area
Freon	1991: 5,830 gpy 1993: 975 gpy	Unknown to present	NA	Manufacturing area
Acetone	1991: 2,555 gpy 1993: 1,480 gpy	Unknown to present	NA	Manufacturing area
Hazardous Waste Liquid	13 drums per year	Unknown to present	NA	WWTP area

* Electroplating operations except: sulfuric acid anodizing of aluminum, tin plating on carbon steel, zinc plating on carbon steel, or zinc aluminum on carbon steel, cleaning/stripping associated with tin, zinc, and aluminum plating on carbon steel, and chemical aluminum.

gpw = Gallons per week.

gpy = Gallons per year.

NA = Not applicable (wastes were disposed off-site).

WWTP = Wastewater treatment plant.

[1; 2; 20; 21; 22; 23; 36]

WASTE/SOURCE SAMPLING

On June 29, 1994, WESTON/ARCS conducted soil and sediment sampling at the Robbins property and along the surface water pathway. During the sampling, WESTON/ARCS collected four soil and eight sediment samples, including duplicate samples. Table 5 summarizes the location of the samples collected from the property and off-site by WESTON/ARCS (Figure 2) [1]. A reference soil sample, SS-04, and sediment sample, SD-07, were collected from areas at and near the Robbins property presumed to be undisturbed for quality control. WESTON/ARCS also collected an equipment rinsate sample using high-pressure liquid chromatography (HPLC) water for organic analyses and deionized water for inorganic analyses [1]. Soil and sediment samples were submitted for full organic, total metals, and cyanide analyses through the EPA Contract Laboratory Program (CLP). The trip blank (TB-01) was submitted for volatile organic analysis only.

Table 5

**Sample Summary: Robbins Company, Inc.
Samples Collected by WESTON/ARCS on June 29, 1994**

Sample Location	Traffic Report No.	Time	Remarks	Sample Depth	Sample Source
MATRIX: Sediment					
SD-01	AHB93 MAFB85	1045	Grab	1 to 1.5 ft	Collected approximately 1 ft, 52° from the headwall located in the northwest side of the wetlands. MS/MSD collected for quality control.
SD-02	AHB94 MAFB86	1130	Grab	0.9 in. to 1 ft	Collected approximately 76.5 ft, 69° from the headwall located in the northwest side of the wetlands.
SD-03	AHB95 MAFB87	1145	Grab	1 to 1.5 ft	Collected approximately 192 ft, 28° from the northeast corner of the storage building.
SD-04	AHB96 MAFB88	0845	Grab	0.4 in. to 1 ft	Collected approximately 190 ft, 105° downstream from the headwall located at the corner of Maple Street and O'Neil Boulevard into Speedway Brook. The headwall is approximately 155.5 ft, 39° from the southwest corner of the main building.
SD-05	AHB97 MAFB89	0845	Grab	0.4 in. to 1 ft	Duplicate of SD-04 for quality control.
SD-06	AHB98 MAFB90	0815	Grab	0.4 in. to 1 ft	Collected approximately 86 ft, 250° from the headwall of pond outfall located on O'Neil Boulevard into Thacher Brook.

Table 5

**Sample Summary: Robbins Company, Inc.
Samples Collected by WESTON/ARCS on June 29, 1994
(concluded)**

Sample Location	Traffic Report No.	Time	Remarks	Sample Depth	Sample Source
SD-07	AHB99 MAFB91	1325	Grab	1.5 to 2 ft	Reference sample collected approximately 225 ft, 20° from the additional parking area entrance on Maple Street and upstream of Speedway Brook. The additional parking entrance is approximately 297 ft, 286° from the headwall located at the corner of Maple Street and O'Neil Boulevard.
SD-08	AHC10 MAFB99	1200	Grab	8 to 16 in.	Collected approximately 133 ft, 52° from the northeast corner of the storage building.
MATRIX: Aqueous					
RB-01	AHC04 MAFB96	1245	Grab	NA	Soil/sediment sampling equipment rinsate for quality control.
TB-01	AHC05	0700	Grab	NA	Trip blank for quality control.
MATRIX: Soil					
SS-01	AHC00 MAFB92	1050	Grab	1 to 2 ft	Collected approximately 18.1 ft, 157° from the headwall located in the northwest side of the wetlands.
SS-02	AHC01 MAFB93	1220	Grab	0.5 in. to 1.5 ft	Collected approximately 127.2 ft, 133° from the northeast corner of the storage building and southeast of the former lagoon area.
SS-03	AHC02 MAFB94	1240	Grab	0.3 in. to 1 ft	Collected approximately 26.7 ft, 115° from the northeast corner of the storage building and northwest of the former lagoon area.
SS-04	AHC03 MAFB95	1340	Grab	8 to 16 in.	Reference soil sample collected approximately 103.2 ft, 255° from the southeast corner of the storage building.

MS/MSD = Matrix Spike/Matrix Spike Duplicate.

NA = Not applicable.

[1]

Table 6 is a summary of compounds and elements detected through CLP analyses of WESTON/ARCS soil and sediment samples. For each sample location, a compound or element is listed if it is detected at three times or greater than the reference sample concentration.

Table 6

Summary of Analytical Results
Soil and Sediment Sample Analyses for Robbins Company, Inc.

Sample Location	Compound/Element	Sample Concentration			Reference Concentration			Comments (Reference ID No.)
SD-01 (AHB93) (MAFB85)	SVOCs							
	Phenanthrene	100	J	µg/kg	22	J	µg/kg	4.5 x Ref (SD-07)
	Fluoranthene	220	J	µg/kg	44	J	µg/kg	5.0 x Ref (SD-07)
	Pyrene	360	J	µg/kg	37	J	µg/kg	10 x Ref (SD-07)
	Benzo(a)anthracene	120	J	µg/kg	22	J	µg/kg	5.5 x Ref (SD-07)
	Chrysene	130	J	µg/kg	24	J	µg/kg	5.4 x Ref (SD-07)
	Benzo(b)fluoranthene	83	J	µg/kg	26	J	µg/kg	3.2 x Ref (SD-07)
	Benzo(k)fluoranthene	89	J	µg/kg	24	J	µg/kg	4.0 x Ref (SD-07)
	Benzo(a)pyrene	130	J	µg/kg	24	J	µg/kg	5.4 x Ref (SD-07)
	INORGANICS							
	Arsenic	2.6	J	mg/kg	1.0	J	mg/kg	2.6 x Ref (SD-07)
Cobalt	6.4		mg/kg	4.9	U	mg/kg	1.3 x SDL	
Nickel	141		mg/kg	9.3		mg/kg	15 x Ref (SD-07)	
SD-02 (AHB94) (MAFB86)	INORGANICS							
	Nickel	28.8		mg/kg	9.3		mg/kg	3 x Ref (SD-07)
SD-04 (AHB96) (MAFB88)	SVOCs							
	Phenanthrene	2900	J	µg/kg	22	J	µg/kg	132 x Ref (SD-07)
	Anthracene	740	J	µg/kg	400	U	µg/kg	2.0 x SQL
	Carbazole	450	J	µg/kg	400	U	µg/kg	1.1 x SQL
	Fluoranthene	4000	J	µg/kg	44	J	µg/kg	91 x Ref (SD-07)
	Pyrene	3300	J	µg/kg	37	J	µg/kg	89 x Ref (SD-07)
	Benzo(a)anthracene	2200	J	µg/kg	22	J	µg/kg	100 x Ref (SD-07)
	Chrysene	2700	J	µg/kg	24	J	µg/kg	113 x Ref (SD-07)
	Benzo(b)fluoranthene	2000	J	µg/kg	26	J	µg/kg	77 x Ref (SD-07)
	Benzo(k)fluoranthene	1700	J	µg/kg	24	J	µg/kg	71 x Ref (SD-07)
	Benzo(a)pyrene	2000	J	µg/kg	24	J	µg/kg	83 x Ref (SD-07)
	Indeno(1,2,3-cd)pyrene	1500	J	µg/kg	400	U	µg/kg	4.0 x SQL
	Dibenz(a,h)anthracene	830	J	µg/kg	400	U	µg/kg	2.0 x SQL
	Benzo(g,h,i)perylene	1600	J	µg/kg	400	U	µg/kg	4.0 x SQL

Table 6

Summary of Analytical Results
Soil and Sediment Sample Analyses for Robbins Company, Inc.
(continued)

Sample Location	Compound/Element	Sample Concentration		Reference Concentration		Comments (Reference ID No.)
SD-04 (AHB96) (MAFB88)	INORGANICS					
	Arsenic	4.0	J mg/kg	1.0	J mg/kg	4.0 x Ref (SD-07)
	Cadmium	2.4	mg/kg	0.67	U mg/kg	4.0 x SDL
	Cobalt	5.8	mg/kg	4.9	U mg/kg	1.2 x SDL
	Copper	66.3	mg/kg	11.3	mg/kg	6.0 x Ref (SD-07)
	Nickel	46.9	mg/kg	9.3	mg/kg	5.0 x Ref (SD-07)
	Silver	9.5	mg/kg	1.1	UJ mg/kg	9.0 x SDL
	Sodium	218	mg/kg	51.5	U mg/kg	4.0 x SDL
SD-05 (AHB97) (MAFB89)	SVOCs					
	Phenanthrene	1200	J µg/kg	22	J µg/kg	55 x Ref (SD-07)
	Fluoranthene	1900	J µg/kg	44	J µg/kg	43 x Ref (SD-07)
	Pyrene	1600	J µg/kg	37	J µg/kg	43 x Ref (SD-07)
	Benzo(a)anthracene	980	J µg/kg	22	J µg/kg	45 x Ref (SD-07)
	Chrysene	1200	J µg/kg	24	J µg/kg	50 x Ref (SD-07)
	Benzo(b)fluoranthene	960	J µg/kg	26	J µg/kg	37 x Ref (SD-07)
	Benzo(k)fluoranthene	810	J µg/kg	24	J µg/kg	34 x Ref (SD-07)
	Benzo(a)pyrene	960	J µg/kg	24	J µg/kg	40 x Ref (SD-07)
	Indeno(1,2,3-cd)pyrene	640	J µg/kg	400	U µg/kg	1.6 x SQL
	Benzo(g,h,i)perylene	690	J µg/kg	400	U µg/kg	1.7 x SQL
	INORGANICS					
	Arsenic	4.3	J mg/kg	1.0	J mg/kg	4.3 x Ref (SD-07)
	Cadmium	1.4	mg/kg	0.67	U mg/kg	2.1 x SDL
	Calcium	4520	mg/kg	1640	mg/kg	3.0 x Ref (SD-07)
	Copper	43.8	mg/kg	11.3	mg/kg	4.0 x Ref (SD-07)
	Lead	67.7	J mg/kg	1.0	mg/kg	67.7 x CRDL#
	Nickel	50.3	mg/kg	19.3	mg/kg	5.4 x Ref (SD-07)
	Silver	8.5	mg/kg	1.1	UJ mg/kg	8.0 x SDL
SD-06 (AHB98) (MAFB90)	SVOCs					
	Phenanthrene	190	J µg/kg	22	J µg/kg	8.6 x Ref (SD-07)
	Fluoranthene	430	µg/kg	44	J µg/kg	10 x Ref (SD-07)
	Pyrene	260	J µg/kg	37	J µg/kg	7 x Ref (SD-07)
	Benzo(a)anthracene	180	J µg/kg	22	J µg/kg	8.2 x Ref (SD-07)
	Chrysene	250	J µg/kg	24	J µg/kg	10.4 x Ref (SD-07)
	Benzo(b)fluoranthene	170	J µg/kg	26	J µg/kg	6.5 x Ref (SD-07)
	Benzo(k)fluoranthene	190	J µg/kg	24	J µg/kg	8 x Ref (SD-07)
	Benzo(a)pyrene	180	J µg/kg	24	J µg/kg	7.5 x Ref (SD-07)

Table 6

Summary of Analytical Results
Soil and Sediment Sample Analyses for Robbins Company, Inc.
(continued)

Sample Location	Compound/Element	Sample Concentration		Reference Concentration		Comments (Reference ID No.)		
SD-06 (AHB98) (MAFB90)	INORGANICS							
	Arsenic	3.0	J	mg/kg	1.0	J	mg/kg	3.0 x Ref (SD-07)
	Cobalt	5.7		mg/kg	4.9	U	mg/kg	62 x SDL
	Copper	37.5		mg/kg	11.3		mg/kg	3.3 x Ref (SD-07)
	Nickel	32.1		mg/kg	9.3		mg/kg	3.5 x Ref (SD-07)
	Silver	25.6		mg/kg	1.1	UJ	mg/kg	23 x SDL
SD-08 (AHC10) (MAFB99)	SVOCs							
	Di-n-butylphthalate	260	J	µg/kg	28	J	µg/kg	9.3 x Ref (SD-07)
	INORGANICS							
	Barium	95.3		mg/kg	30.1		mg/kg	3.0 x Ref (SD-07)
	Beryllium	8.0		mg/kg	0.49	U	mg/kg	16 x SDL
	Chromium	34.0		mg/kg	13.5		mg/kg	3.0 x Ref (SD-07)
	Copper	49.3		mg/kg	11.3		mg/kg	4.4 x Ref (SD-07)
	Lead	177.0		mg/kg	1.0		mg/kg	177 x CRDL
	Potassium	1010		mg/kg	732	U	mg/kg	1.4 x SDL
	Selenium	4.6		mg/kg	0.50	U	mg/kg	9.2 x SDL
Zinc	343		mg/kg	37.5		mg/kg	9.0 x Ref (SD-07)	
SS-01 (AHC00) (MAFB92)	SVOCs							
	Acenaphthylene	540		µg/kg	72	J	µg/kg	7.5 x Ref (SS-04)
	Fluorene	180	J	µg/kg	42	J	µg/kg	4.3 x Ref (SS-04)
	Phenanthrene	1700		µg/kg	460		µg/kg	4.0 x Ref (SS-04)
	Anthracene	630		µg/kg	98	J	µg/kg	6.4 x Ref (SS-04)
	Fluoranthene	2700		µg/kg	670		µg/kg	4.0 x Ref (SS-04)
	Pyrene	6400	J*	µg/kg	590	J	µg/kg	11 x Ref (SS-04)
	Benzo(a)anthracene	2700		µg/kg	290	J	µg/kg	9.3 x Ref (SS-04)
	Chrysene	2300		µg/kg	350		µg/kg	6.6 x Ref (SS-04)
	Benzo(b)fluoranthene	2800		µg/kg	580		µg/kg	5.0 x Ref (SS-04)
	Benzo(a)pyrene	2600		µg/kg	320	J	µg/kg	8.0 x Ref (SS-04)
	Indeno(1,2,3-cd)pyrene	1600		µg/kg	240	J	µg/kg	6.7 x Ref (SS-04)
	Dibenz(a,h)anthracene	810	J	µg/kg	350	U	µg/kg	2.3 x SQL
	Benzo(g,h,i)perylene	2300		µg/kg	250	J	µg/kg	9.2 x Ref (SS-04)
	PESTICIDE/PCBs							
	4,4'-DDT	34	J	µg/kg	12	J	µg/kg	3.0 x Ref (SS-04)

Table 6

Summary of Analytical Results
Soil and Sediment Sample Analyses for Robbins Company, Inc.
 (concluded)

Sample Location	Compound/Element	Sample Concentration	Reference Concentration	Comments (Reference ID No.)
SS-01 (AHC00) (MAFB92)	INORGANICS			
	Nickel	132 mg/kg	10.3 mg/kg	13 x Ref (SS-04)
SS-02 (AHC01) (MAFB93)	INORGANICS			
	Cobalt	6.8 mg/kg	5.3 U mg/kg	1.3 x SDL
	Copper	61.1 mg/kg	20.4 mg/kg	3 x Ref (SS-04)
SS-03 (AHC02) (MAFB94)	INORGANICS			
	Cobalt	7.6 mg/kg	5.3 U mg/kg	1.4 x SDL

J = Quantitation is approximate due to limitations identified during the quality control review.

* = Results reported from diluted analysis.

µg/kg = Micrograms Per Kilogram.

mg/kg = Milligrams Per Kilogram.

SDL = Sample Detection Limit.

SQL = Sample Quantitation Limit.

REF = Reference Concentration.

CRDL = Contract Required Detection Limits.

= Reference results for lead were rejected during the quality control review; therefore, the Contract Required Detection Limits were used.

[1; 44; 45]

Compounds or elements which occur at a concentration three times or greater than the reference concentration (sample locations SS-04 and SD-07) are designated by their approximate relative concentration above the reference value. However, if the element or compound is not detected in the reference sample, the sample quantitation limit (SQL) (for organic analyses) or sample detection limit (SDL) (for inorganic analyses) is used as the reference value. These compounds or elements are listed only if they occurred at a value equal to or greater than the SQL or SDL and are designated by their approximate relative concentration above these values. However, the CRDL was used for lead because the reference concentration was rejected during the quality control review.

Complete analytical results of WESTON/ARCS sampling activities including quantitation and detection limits are presented in Attachment E. Sample results qualified with a "J" on the analytical tables are considered approximate because of limitations identified during the CLP data validation. In addition, organic sample results reported at concentrations below quantitation limits and confirmed by mass spectrometry are also qualified by a "J" and considered approximate.

No VOCs were detected above reference concentrations in soils and sediments obtained from the property and off-site locations. However 15 SVOCs, one pesticide, and 14 inorganic elements were detected at concentrations equal to or greater than the respective reference values, SQL and/or SDL. No SVOCs were detected in SD-02, SD-03, SS-02, and SS-03 collected on the Robbins property. However, elevated concentrations of SVOCs ranging from 1.1 times SQL to 132 times the reference were detected in SD-04/05 and SD-06. Samples SS-01 and SD-01 (collected on Robbins property) contained SVOCs similar to those detected in samples SD-04/05 and SD-06 (downstream samples collected from Speedway Brook) but at lower concentrations.

The concentrations for inorganic elements ranged from 1.3 times SDL to 55 times the reference sample value. Sample location SD-03 contained no detectable levels of inorganic elements. None of the samples analyzed contained detectable levels of cyanide. Barium (95.3 mg/kg), beryllium (8 mg/kg), chromium (34 mg/kg), copper (49.3 mg/kg), potassium (1010 mg/kg), selenium (4.6 mg/kg), and zinc (343 mg/kg) were detected in sample SD-08. During the sampling event, WESTON/ARCS observed possible fill areas with some yard debris at sample location SD-08. Nickel was detected at sample locations SD-01, SD-02, and SS-01 on the Robbins property at 3 to 15 times the reference sample value and at SD-04/05 and SD-06 downstream from Speedway Brook at 3.5 to 5.4 times the reference sample value. Lead was detected in sample location SD-05 and SD-08 at concentrations of 67.7 and 177 mg/kg, respectively. The inorganic elements detected in the samples collected by WESTON/ARCS may be attributed to on-site manufacturing operations.

In addition, the EPA Environmental Service Division (ESD) collected soil samples from three specific areas surrounding the former lagoon area at the Robbins property on June 29, 1994 to determine if removal action is warranted. The three samples (R001, R002, and R003) are depicted on Figure 2. ESD conducted in-house screening analyses for heavy metals using a Kevex XRF analyzer. Method 335.2 through the EPA CLP was used for cyanide analysis [43]. The results of the soil samples collected by ESD are presented in Attachment D. No further action was taken by ESD.

Split samples from each sampling location (with the exception of SD-04, -05, and -06 which were off-site samples) were provided to Robbins. Robbins submitted only two sediment samples and the rinsate sample (RB-01, SD-01, and SD-03) to R.I. Analytical Laboratories, Inc. of Warwick, Rhode Island for volatile organic compounds (VOCs) by EPA Method 8240, semivolatile organic compounds (SVOCs) by EPA Method 8270, pesticide and polychlorinated biphenyls (PCBs) by EPA Method 8080, total metals, and total cyanide analyses [42]. Copies of these analytical results are presented in Attachment C. Analytical results from the three split samples indicated that no VOCs and pesticide/PCBs were detected above the detection limit. This is comparable with the CLP analyses of WESTON/ARCS analytical data. Pyrene was the only SVOC detected at a concentration of 1.0 mg/kg in SD-01. Most of the metal results appear to be comparable. However, lead (109 mg/kg) and silver (69.6 mg/kg) were detected in the rinsate sample [42].

GROUNDWATER PATHWAY

The Robbins facility is located within the Narragansett Basin, a 960-square mile structural and topographic depression containing Pennsylvania Age sedimentary rocks. The property is

underlain by bedrock associated with the Rhode Island Formation. The Rhode Island Formation is described as sandstone, graywacke, shale, and conglomerate; with minor beds of meta-anthracite, and fossil plants [24].

Camp Dresser & McKee (CDM) conducted a Phase I-Limited Site Investigation (LSI) in 1989 on the adjacent Glines and Rhodes Refining property. According to CDM, groundwater from the Glines and Rhodes Refining property flows to the south and southeast. Since Glines and Rhodes Refining and Robbins are adjacent properties and used similar processes in the operations performed at their facilities, it is likely that similar soil conditions can be found at both sites. However, considering that Glines and Rhodes Refining reportedly disposed of metal precipitate sludges from refining process into unlined lagoons, while Robbins' lagoons were lined with concrete, it is possible that contaminants found in the groundwater at the Robbins property, may have migrated from the Glines and Rhodes Refining property, which is to the north and apparently upgradient of Robbins property [25].

According to CDM, the lagoons on the Glines and Rhodes Refining property were paved over in 1977. During the LSI, CDM installed eight monitoring wells at the Glines and Rhodes Refining property. Analytical results from the groundwater samples indicated levels of trichloroethene, benzene, nickel, sodium, mercury, manganese, and lead above the maximum contaminant level (MCL). Soil samples collected from the monitoring wells and soil borings indicated elevated concentrations of nickel, zinc, and cadmium. Attachment B summarizes the results of the groundwater and soil samples taken from the Glines and Rhodes Refining property [25].

The soil borings at the Glines and Rhodes Refining property indicated 4 to 6 feet of top soil consisting of sand and gravel. Most of the soil borings consisted of gray silt from 5 to 19 feet; however, the monitoring well logs indicated sand and gravel in this range [25]. The bedrock in this area is estimated to be at a depth of 45 feet [25].

Net annual precipitation is estimated to be 19.3 inches per year, based on an average precipitation of 45.3 inches per year less the mean annual evaporation of 26 inches per year [25].

Based on data collected during soil borings and the installation of the monitoring wells, the groundwater table beneath the property ranges from 4.5 to 7.5 feet below ground surface [17; 25]. Groundwater flow is toward the south-southeast [25].

The area surrounding the Robbins property is served primarily by a public water supply system. Private well users were estimated by using a house count based on U.S. Geological Survey (USGS) Topographic Quadrangle Maps, and calculations performed by Frost Associates of Essex, Connecticut using 1990 census data. An estimated six people within a one-mile radius of the property are served by private wells, the exact locations of these wells could not be determined, as local agencies do not maintain records of private well users/owners [40]. There are no municipal groundwater wells within one mile of the property. An estimated 45,507 people are served by public and private water supply wells within a four-mile radius of the Robbins facility [11; 12; 26; 27].

The nearest public water supply well is the Mary Kennedy Drive Wells No. 1 and No. 2 in North Attleboro, located approximately 3.2 miles north of the property. These wells serve approximately 5,334 people (Figure 3) [11]. Table 7 lists public water supply wells within four mile radius of the property. Table 8 lists the populations served by drinking water from public and private wells within each of the target distance rings.

Table 7

Public Water Supply Sources Within Four Miles of Robbins Company, Inc.

Well No.*	Distance/Direction from Site	Source Name	Location of Source	Estimated Population Served	Source Type
1	3.2 miles north	Mary Kennedy Drive Wells No. 1 and No. 2	North Attleboro	5,334	Unknown
2	3.4 miles northwest	Orr's Pond Wells No. 1 through No. 8	Attleboro	30,400	Gravel-packed
3	3.5 miles northeast	Wading River No. 1 and No. 2	Mansfield	7,600	Gravel-packed

*Well No. corresponds to Well No. shown on Figure 3.
[11; 26; 27]

Table 8

Estimated Drinking Water Populations Served By Groundwater Sources Within Four Miles of Robbins Company, Inc.

Radial Distance From Robbins Company, Inc. (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources Within the Ring
0.00 < 0.25	0	0	0
0.25 < 0.50	0	0	0
0.50 < 1.00	6	0	6
1.00 < 2.00	16	0	16
2.00 < 3.00	710	0	710
3.00 < 4.00	1,441	43,334	44,775
TOTAL	2,173	43,334	45,507

[11; 12; 26; 27]

No groundwater samples were collected by WESTON/ARCS during the on-site activities.

SURFACE WATER PATHWAY

The Robbins property is located in the Tenmile River drainage basin [25]. Generally, on-site surface water run-off flows via overland flow towards the headwall in the wetlands and to a catch basin in the on-site parking lot. Both empty into the town stormwater drainage system, which empties into Speedway Brook (approximately 70 feet southwest of the property) [1]. The most upstream probable point of entry (PPE) to the 15-mile surface water pathway is along Speedway Brook. From the PPE, Speedway Brook flows south approximately 500 feet to Thacher Brook (Figure 1). Thacher Brook flows to the southwest for approximately three-quarters of a mile to Dodgeville Pond. From Dodgeville Pond, surface water flows approximately 1.5 miles southwest via the Tenmile River to Hebronville Pond; at which point surface water flows roughly three-quarters of a mile southwest discharging into the Tenmile River. Surface water then flows approximately six miles south along the Tenmile River, where it enters Central Pond in East Providence, Rhode Island. Surface water then generally flows south into the James V. Turner Reservoir. After entering the James V. Turner Reservoir, surface water discharges to the west via Tenmile River. Surface water continues to flow one and one-half miles along the Tenmile River to Omega Pond in East Providence where the 15-mile downstream pathway ends [28; 29; 30]. Table 9 summarizes the water bodies within the 15-mile surface water pathway flow from the Robbins facility.

Table 9

Water Bodies Within the Surface Water Segment of Robbins Company, Inc.

Surface Water Body	Description	Length of Reach	Flow Characteristics (cfs)*	Length of Wetlands
Speedway Brook	Small to moderate stream	500 feet	10 to 100	200 feet
Thacher Brook	Small to moderate stream	3/4 miles	10 to 100	800 feet
Dodgeville Pond	Small to moderate stream	1 mile	10 to 100	None
Tenmile River	Small to moderate stream	1.75 miles	10 to 100	None
Hebronville Pond	Small to moderate stream	1 mile	10 to 100	100 feet
Tenmile River	Moderate to large stream	6 miles	<200	8,000 feet
Central Pond	Moderate to large stream	1 mile	<200	None
James V. Turner Reservoir	Moderate to large stream	1 mile	<200	None
Tenmile River	Moderate to large stream	1.75 miles	<200	1,000 feet
Omega Pond	Moderate to large stream	.5 miles	<200	None

*Cubic feet per second.

< = less than.

[1; 29; 30]

There is no published information on flow rates for Speedway Brook, Thacher Brook, or the parts of the Tenmile River along the Robbins surface water pathway. An estimated flow of 10 to 100 cubic feet per second (cfs) for Speedway Brook and Thacher Brook is based on observations during the on-site reconnaissance [1]. The average flow rate of the Tenmile River further downstream of the end of the 15-mile surface water pathway, at the Pawtucket Avenue, Rhode Island gaging station is between 32 to 189 cfs [31].

The overland flow route of surface drainage from the property, as well as, surface drainage from several industrial facilities, empties into Speedway Brook. Many industries in the area have discharged their wastewaters into Speedway Brook [1].

None of the surface water bodies along the surface water migration pathway are known to be used as drinking water supply sources [17; 32; 38; 39].

Although no swimming is known to occur anywhere along the 15-mile surface water pathway, frequent boating and fishing reportedly occurs in Dodgeville Pond, Hebronville Pond, Tenmile River, Omega Pond, Turner Reservoir, and Central Pond. No boating or fishing is known to occur on Thacher Brook or Speedway Brook [17; 32; 37; 38; 39].

Wetlands are located near the northeastern property boundary. Additionally, based on USGS topographic, approximately two miles of wetland frontage is found along the 15-mile downstream pathway [1; 28; 30]. According to the U.S. Fish and Wildlife Services, there are no Federally listed or proposed threatened and endangered species along the 15-mile downstream pathway or the four-mile radius from the Robbins property [33]. Natural Diversity Database information for the 15-mile downstream pathway was unavailable. One sediment sample was collected from the wetlands bordering the Glines and Rhodes Refining property and the Robbins property by CDM in 1991 for Glines and Rhodes Refining SI. The sample was analyzed for metals, cyanide, and base/neutral/acid (BNA) extractable compounds. Only cadmium and zinc were detected in the sediment samples at levels higher than the anticipated natural and anthropogenic background levels in Massachusetts [25]. Attachment B summarizes the results of the sediment sample taken from the Glines and Rhodes Refining property.

No surface water samples were collected by WESTON/ARCS during on-site activities; however, WESTON/ARCS collected eight sediment samples from the Robbins property and off-site along the surface water pathway on June 29, 1994 (Figure 2, Table 5) [1]. Samples were submitted for full organic, total metals, and cyanide analyses through the EPA CLP. Table 6 is a summary of compounds and elements detected through CLP analyses of WESTON/ARCS sediment samples.

Compounds or elements which occur at a concentration three times or greater than the reference concentration (sample location SD-07) are designated by their approximate relative concentration above the reference value. However, if the element or compound is not detected in the reference sample, the SQL (for organic analyses) or SDL (for inorganic analyses) is used as the reference value. These compounds or elements are listed only if they occurred at a value equal to or greater than the SQL or SDL and are designated by their approximate relative concentration above these values.

Complete analytical results of WESTON/ARCS sampling activities including quantitation and detection limits are presented in Attachment E. Sample results qualified with a "J" on the analytical tables are considered approximate because of limitations identified during the CLP data validation. In addition, organic sample results reported at concentrations below quantitation limits and confirmed by mass spectrometry are also qualified by a "J" and considered approximate.

Elevated concentrations of SVOCs were detected in the sediment samples collected downstream from Speedway Brook (SD-04/05 and SD-06). Sample location SD-01 (located on the property) contained SVOCs similar to those detected in SD-04/05 and SD-06 with concentrations ranging from 1.1 times SQL to 132 times the reference sample concentration. The SVOCs concentrations detected in the downstream sediment sample locations exceeded the concentrations detected from the samples on Robbins property. In addition, analyses of the downstream sediment samples indicated the presence of eight inorganic elements: arsenic, cadmium, calcium, cobalt, copper, nickel, silver, and sodium. Silver was detected in the downgradient surface water samples SD-04/05 and SD-06 above the SDL. Arsenic, copper, and nickel were detected in samples SD-01 (located on the property), SD-04/05 and SD-06 (downstream samples). Surface water runoff from Robbins and surrounding properties would be expected to impact the downstream sample locations. Previous sampling and analyses have indicated the presence of nickel, lead, and silver associated with Robbins. Additional analytical results were presented in the Waste/Source Sampling section.

SOIL EXPOSURE PATHWAY

There are approximately 300 workers who regularly work at the Robbins facility. The closest residences are along Maple Street in Attleboro, located approximately 50 feet to the south of Robbin's property boundary. No known day-care facilities are located within 200 feet of the property [1]. The Thacher School, located approximately 0.3 miles to the southwest, is the closest school to the property [1; 28]. There are no on-site terrestrial sensitive environments [1; 33]. There are an estimated 10,394 people who live within one mile of the property [12].

It is possible that a release of metals into sub-soils and groundwater could have taken place from, spills, leaks or leaching from the former lagoon area. Franklin Environmental Services under contract to Robbins collected samples from the former lagoon area, approximately 8 feet below the ground surface in 1987. The analytical results indicated that total cyanide and total metals concentrations of the soils under the lagoon areas were below the reportable EPA regulatory levels [17]. Due to the analytical results the underlying soil was considered non-contaminated; therefore, the soil was not removed [18]. Since the former lagoon area was dismantled, removed, and backfilled during 1991 and 1992, direct contact with soil and subsequent ingestion or dermal contact is not likely. Clean fill was used to fill and grade in the former lagoon area [1; 17].

On June 29, 1994, WESTON/ARCS conducted soil and sediment sampling at Robbins property (Table 5). Analytical results were presented in the Waste/Source Sampling section (Table 6).

AIR PATHWAY

The nearest individuals to the property are the on-site workers [1]. Approximately 300 people work at Robbins on one shift [1]. An estimated 48,544 people reside within four miles of the property [12]. Table 10 lists the estimated population within a four-mile radius of the property. Population data which was based on census data from the year 1990, was tabulated by Frost Associates of Essex, Connecticut [12]. The student and worker populations within four miles could not be quantified.

Table 10

**Estimated Population Within Four Miles of
Robbins Company, Inc.**

Radial Distance from Robbins Company, Inc. (miles)	Estimated Population
On-site	300
0.00 < 0.25	936
0.25 < 0.50	2,370
0.50 < 1.00	7,088
1.00 < 2.00	12,284
2.00 < 3.00	10,608
3.00 < 4.00	14,958
TOTAL	48,544

There are no known complaints on file for air emissions, odors or discharges for Robbins. Similarly, no air permits were located for Robbins in the MA DEP or EPA files. No known air sampling has been conducted at the Robbins facility to date.

No terrestrial sensitive environments were observed on areas of potential contamination [1; 33]. There are no known Federally listed or proposed threatened and endangered species within a four-mile radius of the Robbins property [33]. Natural Diversity Database information for the four-mile radius was unavailable.

SUMMARY

The Robbins Company, Inc. (Robbins) property is located on the east side of O'Neil Boulevard in Attleboro, Bristol County, Massachusetts (latitude 41° 58' 10", longitude 71° 19' 20"). Robbins is a manufacturer of jewelry and awards, principally for personnel-recognition.

Two buildings connected by a breezeway are located on the 6.6-acre parcel. The main building, which is approximately 54,000 square feet, houses the offices and manufacturing department, hazardous waste storage area and the present wastewater treatment plant (WWTP). A partial second floor (approximately 6,600 square feet) exists in the main building. The storage building is approximately 25,600 square feet and is used as a warehouse for finished goods. Both buildings are constructed with concrete slab on-grade foundations.

During the Roy F. Weston, Inc. Alternative Remedial Contract Strategy (WESTON/ARCS) on-site reconnaissance, no areas of stained soil or stressed vegetation were observed.

The topography of the area is relatively flat sloping slowly towards the south. The northeastern and eastern property boundaries are at the top of a 5 foot vertical embankment. The property is located in an industrial/commercial area with residential properties to the east and south. Waste Management is located northwest of the property across O'Neil Boulevard. Arthur H. Nelson & Son, Inc. and Glines and Rhodes Refining abut the property to the north. National Recycling and residential houses abut the property to the east. Residential housing, Hair D.E.W. and Brook Haven Estates are located to the south of the property across Maple Street.

To date, no monitoring wells have been installed on the Robbins property. The area surrounding the Robbins property is served primarily by a public water supply system. An estimated six people within one mile of the property are served by private wells. There are no municipal groundwater wells within one mile of the property. An estimated 45,507 people are served by public and private water supply wells within four miles of the property. The nearest public water supply well is the Mary Kennedy Drive Wells No. 1 and No. 2 in North Attleboro, located approximately 3.2 miles to the north of the property and supplies potable water to an estimated 5,334 people.

The Robbins property is located in the Tenmile River Drainage Basin. The overland flow route of surface water run-off from the property is towards the headwall in the wetlands and to the catch basin in the parking lot. Both empty into the town stormwater drainage system which empties into Speedway Brook (approximately 70 feet southwest of the property). The most upstream probable point of entry (PPE) is Speedway Brook. From the PPE, Speedway Brook flows south approximately 500 feet to Thatcher Brook; then southwest for approximately three-quarters of a mile to Dodgeville Pond; then flows approximately 1.5 miles southwest via the Tenmile River to Hebronville Pond; then roughly three-quarters of a mile southwest returning to the Tenmile River; surface water then flows approximately six miles south where it enters Central Pond in East Providence, Rhode Island; then generally south into the James V. Turner Reservoir; then generally west via the Tenmile River approximately one and one-half miles; and finally into the Omega Pond in East Providence where the 15-mile downstream pathway ends. Boating and fishing occur frequently in Dodgeville Pond, Hebronville Pond, Tenmile River, Omega Pond, Turner Reservoir, and Central Pond. No fishing or boating is known to occur on Speedway Brook or Thatcher Brook. No swimming is known to occur anywhere along the 15-mile surface water pathway.

The overland flow route of surface drainage from the property, as well as, surface drainage from several industrial facilities, empty into Speedway Brook. Many industries in the area have discharged their wastewaters into Speedway Brook.

Wetlands are located near the northeastern property boundary. Additionally, approximately two miles of wetland frontage is along the 15-mile downstream pathway. There are no Federally listed or proposed threatened and endangered species along the 15-mile downstream pathway or the four-mile radius from the Robbins property. Natural Diversity Database information for the 15-mile downstream pathway was unavailable.

There are approximately 300 workers who work on one shift at the Robbins facility. The closest residences are along Maple Street in Attleboro, located approximately 50 feet to the south of the Robbins property boundary. No known day-care facilities are located within 200 feet of the property. The Thacher School, located approximately 0.3 miles to the southwest, is the closest school to the property. There are no on-site terrestrial sensitive environments. There are an estimated 10,394 people who live within one mile of the property.

In 1987, groundwater was sampled at a depth of about 8 to 10 feet below the ground surface at two separate excavations (locations unknown). Both groundwater sampling locations were downgradient of the lagoons and were analyzed for silver, nickel, and total cyanide. Nickel was detected at a concentration of 0.12 milligrams per liter (mg/L). The current Massachusetts Drinking Water Standard for nickel is 0.08 mg/L.

Considering the fact that the adjacent, reportedly upgradient property, Glines and Rhodes Refining, disposed of metal precipitate sludges into unlined lagoons, it is possible that groundwater contamination found on the Robbins property may have migrated from the Glines and Rhodes Refining property.

A Health and Environmental Risk Assessment was performed for the former lagoons in July 1992 by W.E. Kuringer Associates and the Paulding Company, Inc. for Robbins. Soils beneath the lagoons (8 feet below the ground surface) were sampled at five locations and were analyzed for total cyanide and the eight Resource Conservation and Recovery Act (RCRA) metals. The samples were analyzed by means of the Toxicity Characteristic Leaching Procedure (TCLP). The analytical results indicated that the total cyanide and total metals concentrations of the soils below the lagoons were below the reportable regulatory levels.

There are no known complaints on file for air emissions, odors or discharges for Robbins. Similarly, no air permits were located for Robbins in the Massachusetts Department of Environmental Protection (MA/DEP) or Region I U.S. Environmental Protection Agency (EPA) files. No known air sampling has been conducted to date.

On June 29, 1994, WESTON/ARCS conducted soil and sediment sampling at the Robbins property and along the surface water pathway. The samples were analyzed for full organic, total metals, and cyanide through EPA CLP. WESTON/ARCS analytical results indicated elevated concentrations of SVOCs detected in the SD-04/05 and SD-06 collected downstream at Speedway Brook. Sample location SD-01 (on the property) contained SVOCs similar to those detected in SD-04/05 and SD-06; however, the SVOC concentrations detected in the downstream sediment sample locations exceeded the concentrations detected from the samples on Robbins property. In addition, analyses of the downstream sediment samples indicated the presence of eight inorganic elements: arsenic, cadmium, calcium, cobalt, copper, nickel, silver, and sodium. Silver was detected in the downgradient surface water samples SD-04/05 and SD-06 above the

SDL. Arsenic, copper, and nickel were detected in samples SD-01 (on the property), SD-04/05 and SD-06 (downgradient sediment samples). Surface water runoff from Robbins and surrounding properties would be expected to impact the downstream sample locations. Sample location SD-03 contained no detectable levels of inorganic elements. Barium (95.3 mg/kg), beryllium (8 mg/kg), chromium (34 mg/kg), copper (49.3 mg/kg), potassium (1010 mg/kg), selenium (4.6 mg/kg), and zinc (343 mg/kg) were detected in sample SD-08. During the sampling event, WESTON/ARCS observed possible fill areas with yard debris at SD-08 sample location. None of the samples analyzed contained detectable levels of cyanide. Previous sampling and analyses have indicated the presence of nickel, lead, and silver associated with Robbins. The inorganic elements detected in the samples collected by WESTON/ARCS may be attributed to on-site manufacturing operations.

Split samples were provided to Robbins. Robbins submitted only two sediment samples and the rinsate sample (RB-01, SD-01, and SD-03) for analyses. Analytical results from the three split samples indicated that no VOCs or pesticide/PCBs were detected above the detection limit. These results are comparable with the CLP analyses of WESTON/ARCS analytical data. Pyrene was the only SVOC detected at a concentration of 1.0 mg/kg in SD-01. Most of the metal results appear to be comparable. However, lead (109 mg/kg) and silver (69.6 mg/kg) were detected in the rinsate sample.

ROBBINS COMPANY, INC.
REFERENCES

- [1] WESTON/ARCS. 1993. Field Logbook - Robbins Company, Inc. Site. TDD No. 9209-37-AWC.
- [2] Paulding, Bartlett. 1987. 21E Site Assessment of the Robbins Company. September 23.
- [3] MA DEP. (Massachusetts Department of Environmental Protection). 1982. Notice of Violation issued to Robbins. September 27.
- [4] MA DEP. (Massachusetts Department of Environmental Protection). 1983. Notice of Violation issued to Robbins. June 1.
- [5] MA DEP. (Massachusetts Department of Environmental Protection). 1984. Notice of Violation issued to Robbins. March 6.
- [6] MA DEP. (Massachusetts Department of Environmental Protection). 1991. Notice of Noncompliance issued to Robbins. May 23.
- [7] MA DEP. (Massachusetts Department of Environmental Protection). 1991. Notice of Inspection issued to Robbins. July 1.
- [8] MA DEP. (Massachusetts Department of Environmental Protection). 1991. Notice of Violation issued to Robbins. August 19.
- [9] NUS/FIT. 1983. Preliminary Assessment Report for Robbins. November 2.
- [10] NUS/FIT. 1990. Final Screening Site Inspection RCRA Deferral Memo. June 22.
- [11] Czelusniak, T. (WESTON/ARCS). 1992. Telephone conversation record with Attleboro Water Department, RE: Attleboro public water hookups. December 15.
- [12] Frost Associates. 1993. Letter from Frost Associates to WESTON/ARCS, RE: Private water supply and population data within 4 miles of Robbins. May 23 TDD No. 9209-37-AWC.
- [13] Robbins Company, Inc. 1993. Fact Sheet, RE: History of Robbins Company. June 1.
- [14] Goldthwaite, M. (WESTON/ARCS). 1993. Phone Conversation Record with Attleboro Tax Assessor's Office, RE: property ownership. December 3.

ROBBINS COMPANY, INC.

REFERENCES

(continued)

[15] EPA. 1993. Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Superfund Program. Region I U.S. Environmental Protection Agency. Printout dated January 11.

[16] EPA. 1991. F.O.I. Report/RCRA Waste Handlers, Region I U.S. Environmental Protection Agency. Printout dated May 13.

[17] Robbins Company, Inc. 1992. Health and Environmental Risk Assessment for Robbins. July 20.

[18] The Paulding Company, Inc. 1991. Letter summarizing Closure Plan Activities for the Robbins former WWTP. July 12.

[19] Robbins Company, Inc. 1993. USIA Delegation of Environmental Professionals. July 1.

[20] Robbins Company, Inc. 1993. Fact sheet summarizing solvent usage between 1991-1993. October 15.

[21] Robbins Company, Inc. 1993. Hazardous Waste Inspection Log. August 20.

[22] Robbins Company, Inc. 1993. Fact sheet summarizing hazardous waste reduction. August 23.

[23] Center of Technology, Policy and Industrial Development. 1990. Innovation at the Robbins Company: A Case Study. October 15.

[24] USGS. (U.S. Geological Survey). 1985. Bedrock Geologic Map of MA.

[25] CDM. (Camp Dresser and McKee). 1991. Draft Site Investigation for the Glines and Rhodes Site. September.

[26] Czelusniak, T. (WESTON/ARCS). 1992. Telephone conversation record with North Attleboro Water Department, RE: North Attleboro public water hookups. December 15.

[27] Czelusniak, T. (WESTON/ARCS). 1993. Telephone conversation record with Mansfield Water Department, RE: Mansfield public water hookups. January 19.

[28] USGS. (U.S. Geological Survey). 1987. Attleboro Quadrangle, MA. 7.5' Series (Topographic).

ROBBINS COMPANY, INC.

REFERENCES

(continued)

[29] USGS. (U.S. Geological Survey). 1987. Taunton Quadrangle, MA. 7.5' Series (Topographic).

[30] USGS. (U.S. Geological Survey). 1987. Providence Quadrangle, RI. 7.5' Series (Topographic).

[31] USGS. (U.S. Geological Survey). 1991. Water Resources Data, MA-RI Water Year 1991.

[32] MA DEP. (Massachusetts Department of Environmental Protection). 1989. MA Public Water Supply Database Massachusetts Department of Environmental Protection, Division of Water Supply. August 6.

[33] DOI. (United States Department of the Interior). Fish and Wildlife Service. 1993. Letter, RE: Federally listed and proposed endangered or threatened species in relation to the Robbins site. July 2.

[34] Goldthwaite, M. (WESTON/ARCS). 1993. Phone Conversation Record with Brookhaven Estates, RE: number of residents. December 7.

[35] Commonwealth of Massachusetts. Board of Registration of Hazardous Waste Cleanup Professionals. 1993. Massachusetts Contingency Plan, October 1.

[36] EPA. 1990. Code of Federal Regulations, Section 302.4 and Section 261.22. June 1.

[37] Faulkner, S. (WESTON/ARCS). 1994. Phone Conversation Record with Dave Perry of Sylvane's Nursery, Attleborough, Massachusetts, RE: Water usage along 15-mile surface water pathway (Massachusetts segment). January 6.

[38] Faulkner, S. (WESTON/ARCS). 1994. Phone Conversation Record with Martin Mendelson of the Providence Water Supply Board, Providence, Rhode Island, RE: Turner Reservoir usage. January 6.

[39] Faulkner, S. (WESTON/ARCS). 1994. Phone Conversation with Jeanne Boyle of the East Providence Planning Board, East Providence, Rhode Island, RE: Recreation on waterbodies along 15-mile pathway (Rhode Island segment). January 7.

[40] LaForge, L. (WESTON/ARCS). 1994. Phone Conversation with Mr. Mooney of the Attleboro Health Department, RE: private well locations. April 25.

[41] Robbins Company, Inc. 1994. Response Letter to questions regarding Robbins Company. November 14.

ROBBINS COMPANY, INC.
REFERENCES
(concluded)

[42] Robbins Company, Inc. 1994. Analytical results performed by R.I. Analytical Laboratories, Inc. for Robbins Company. November 14.

[43] EPA. (U.S. Environmental Protection Agency). 1994. Analytical Results by Environmental Service Division (ESD). December 5.

[44] Manmade, A., et al. (WESTON/ARCS). 1994. Letter to M. Leshen (EPA), RE: Case 22395, SDG No. AHB93 (Organic Analyses). September 19.

[45] Manmade, A., et al. (WESTON/ARCS). 1994. Letter to M. Leshen (EPA), RE: Case 22395, SDG No. MAFB85 (Inorganic Analyses). August 4.

ATTACHMENT A

ROBBINS COMPANY, INC.

**SOIL SAMPLING RESULTS
A HEALTH AND ENVIRONMENTAL RISK ASSESSMENT
W.E. KURINGER ASSOCIATES AND THE PAULDING COMPANY**

ATTACHMENT B

ROBBINS COMPANY, INC.

**GROUNDWATER AND SOIL SAMPLING RESULTS
SITE INVESTIGATION FOR GLINES AND RHODES PROPERTY
CAMP DRESSER & MCKEE**

ATTACHMENT C

ROBBINS COMPANY, INC.

**SPLIT SOIL AND SEDIMENT SAMPLE ANALYTICAL RESULTS
ANALYZED BY R.I. ANALYTICAL LABORATORIES, INC.
FOR ROBBINS COMPANY, INC.**

**Samples Collected by WESTON/ARCS
on June 29, 1994**

ATTACHMENTD

ROBBINS COMPANY, INC.

**SOIL SAMPLE ANALYTICAL RESULTS
ANALYZED BY EPA ENVIRONMENTAL SERVICES DIVISION**

**Samples Collected by WESTON/Technical Assistance Team
on June 29, 1994**

ATTACHMENTE

ROBBINS COMPANY, INC.

**SOIL AND SEDIMENT SAMPLE ANALYTICAL RESULTS
ANALYZED BY CLP LABORATORIES**

**Samples Collected by WESTON/ARCS
on June 29, 1994**